JOURNAL OF Arteriology
PRODUCED BY THE BALE/DONEEN METHOD

Bale/Doneen Live Chat September 12, 2012

Webinar

Amy Doneen MSN, ARNP

Bale Doneen METHOD

Back To School 2012

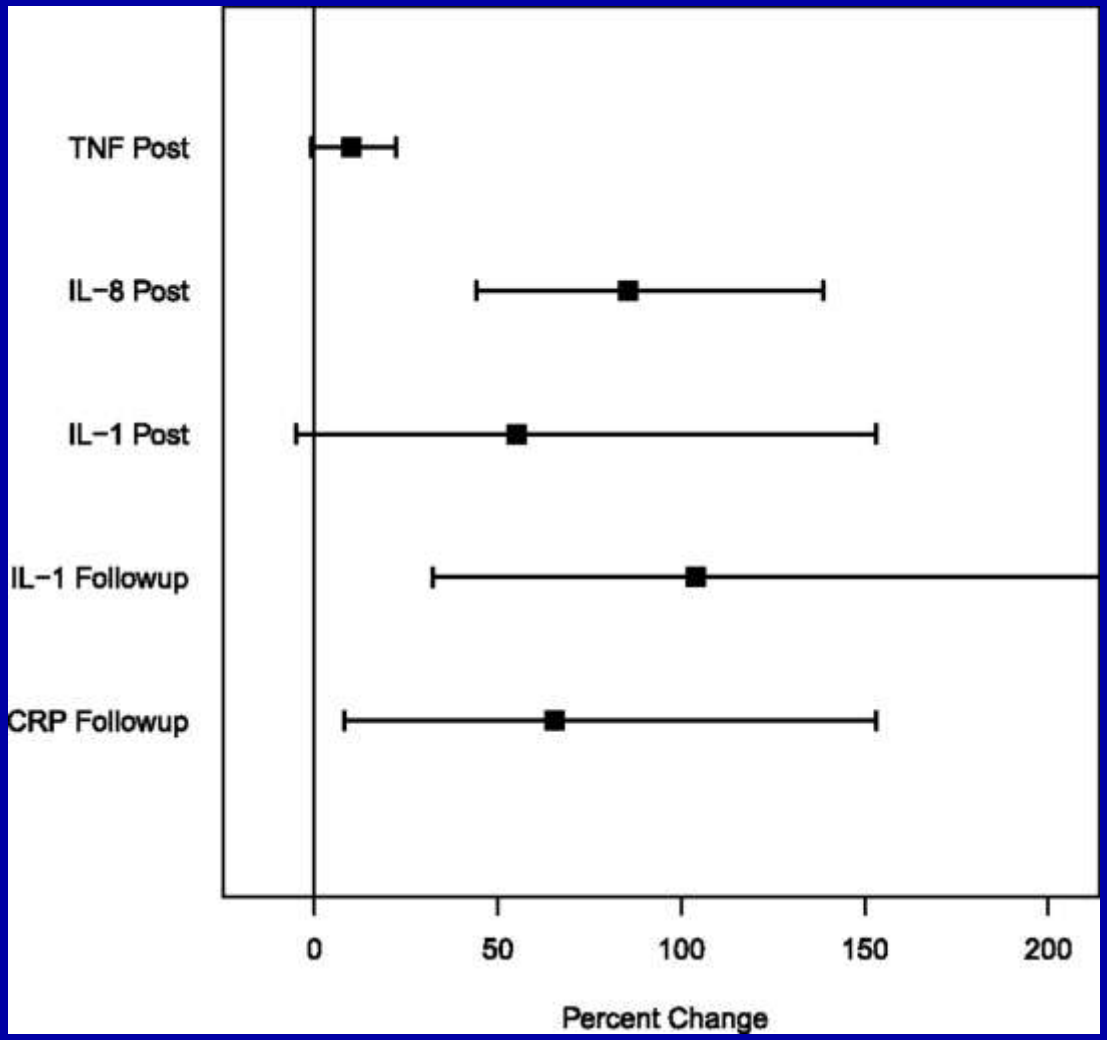
Red Flags

Ozone can Stimulate Adverse CV Effects

- 23 healthy young adults; cross over exposure to ozone or clean air for 2hrs. while alternating 15’ rest/exercise
- 0.3-ppm ozone; higher than EPA standard of 0.076- ppm; only slightly higher than peak levels in Beijing and Mexico; ‘real life’ exposure can be much longer
- Ozone exposure stimulated increase in vascular markers of inflammation and a fibrinolytic state; also affected markers of autonomic control of heart rate

Devlin R B et al. Circulation 7/2012;126:104-111

Ozone-induced Adverse Changes in Markers of Vascular Inflammation.



Post = immediately after 2 hr. exposure

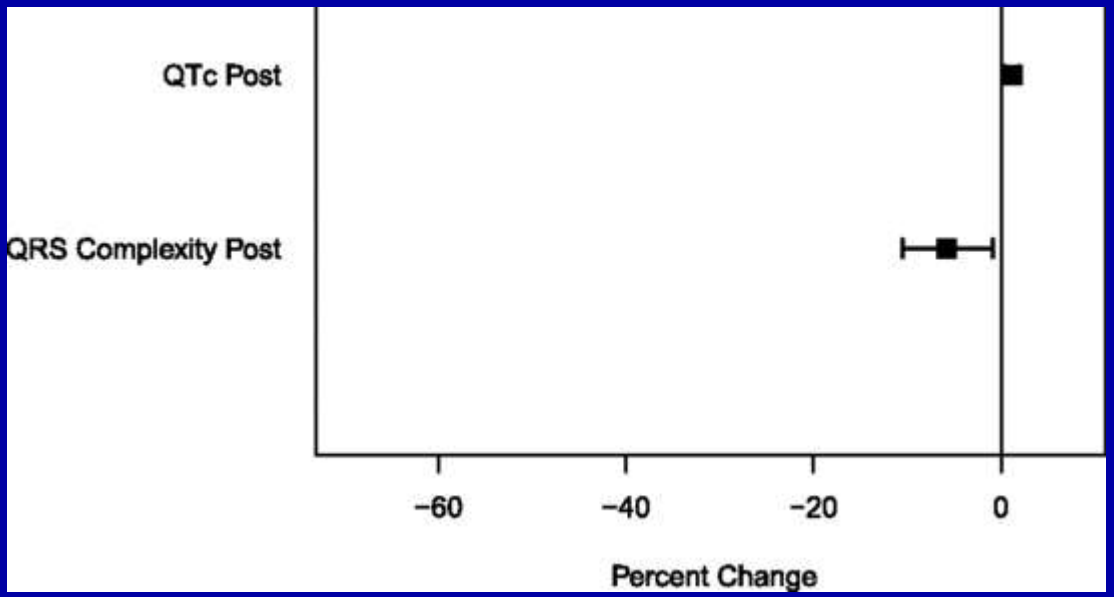
Followup= 24 hrs. after exposure

Devlin R B et al. Circulation 7/2012;126:104-111

Ozone Induced an Increase in QT Interval

Prolonged QT interval is a risk factor for ventricular tachyarrhythmias and sudden death.

QTc= corrected for heart rate



Devlin R B et al. Circulation 7/2012;126:104-111

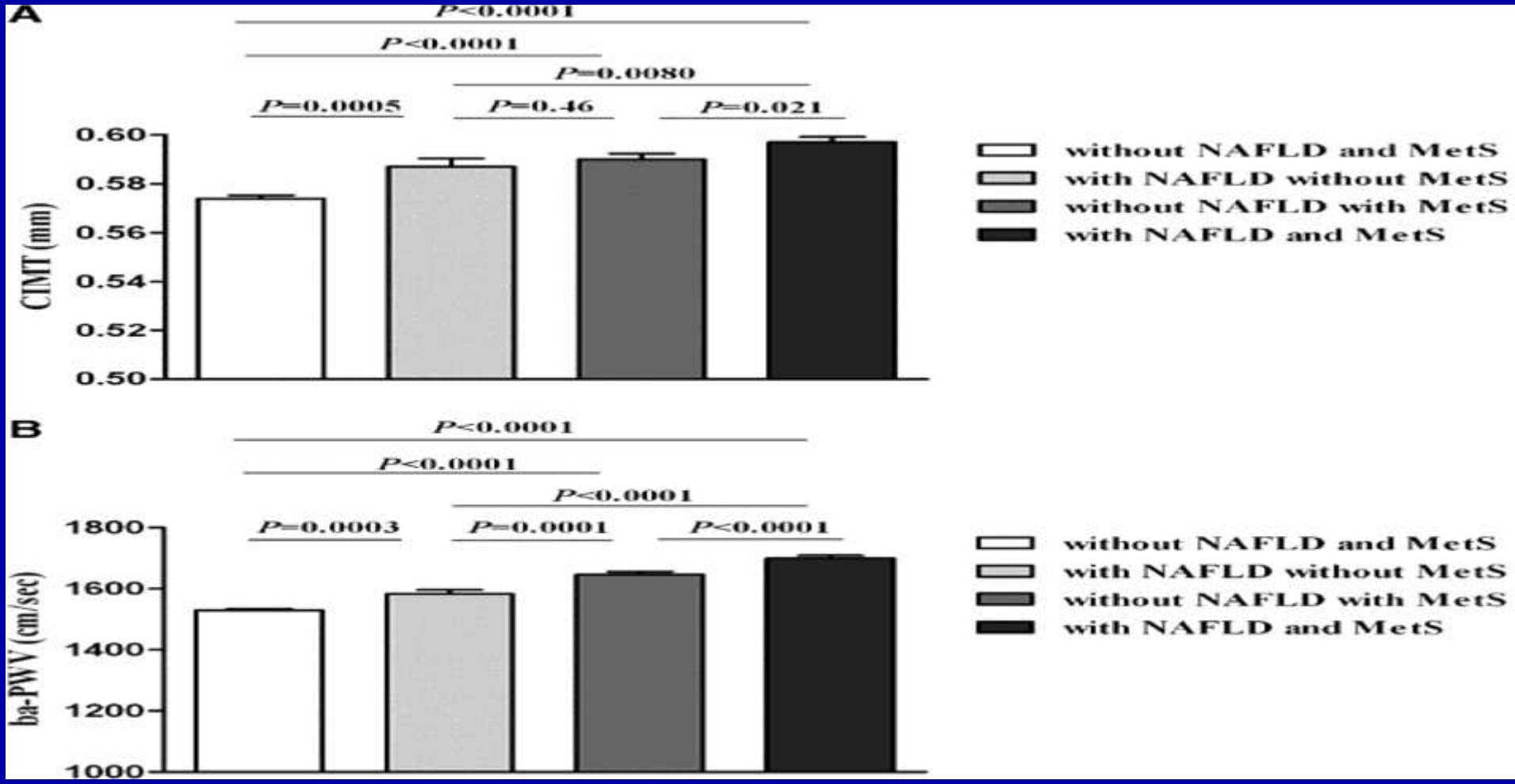
Nonalcoholic Fatty Liver Disease Is Associated With Atherosclerosis in Middle-Aged and Elderly Chinese

8632 participants aged ≥40 years. The prevalence of NAFLD was 30.0% in the total population, with 30.3% in men and 29.9% in women, respectively.

NAFLD was associated with elevated CIMT and ba-PWV, independent of conventional cardiovascular disease risk factors and metabolic syndrome. The effects of NAFLD and metabolic syndrome on atherosclerosis might not fully overlap

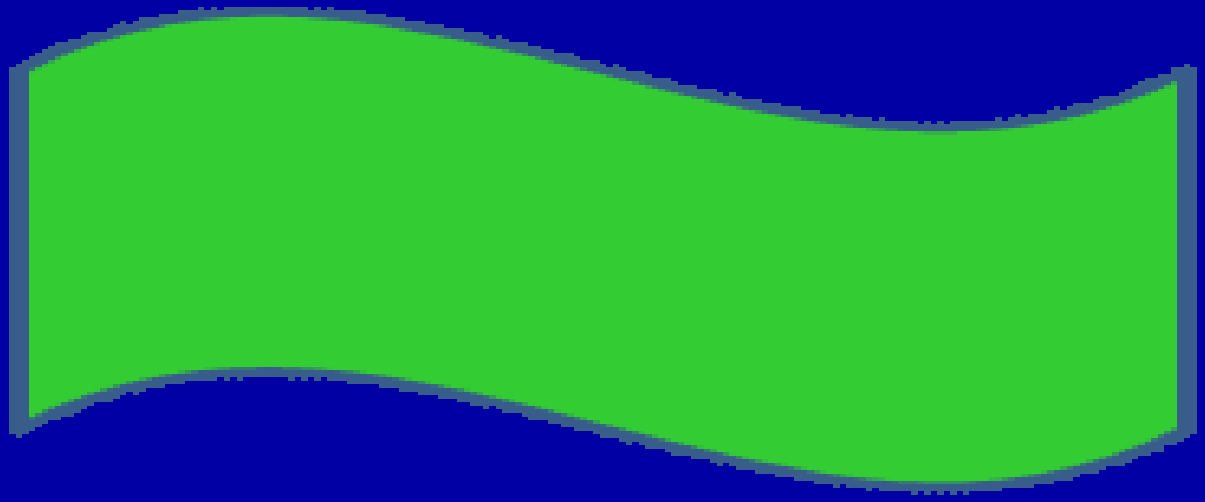
Huang Y et al. Arterioscler Thromb Vasc Biol 2012;32:2321-2326

Carotid intima-media thickness (CIMT) and brachial-ankle pulse wave velocity (ba-PWV) relatied to patients with and without NAFLD or Metabolic Syndrome



Huang Y et al. Arterioscler Thromb Vasc Biol 2012;32:2321-2326

Green Flags



Type B and AB Carry Significantly Higher CHD Risk Than Type O

- ~90,000 adults (2/3 women) followed over 20 yrs

- Type O had the lowest CHD risk; the hazard ratios compared to type O were:

  Type A) HR- 1.06 (95% CI- 0.99–1.15)

  Type B) HR- 1.15 (95% CI- 1.04–1.26)

  Type AB) HR-1.23 (95%CI- 1.11–1.36)

He, M., et. al. ***Arterioscler Thromb Vasc Biol. 8/2012;32:1-7***

Gilbert Syndrome: Cardioprotective

- Gilbert synd incidence is 5-10%; mild unconjugated hyperbilirubinemia; bilirubin at low concentrations is a potent endogenous antioxidant
- 216 healthy young men; half with Gilbert's
- Evaluated oxidative stress with urinary 8-hydroxy-2'-deoxyguanosine (8-OHdG)
- Evaluated endothelial function with FMD brachial artery

Maruhashi, T., et. al. *Circulation. published online July 6, 2012*
DOI: 10.1161/CIRCULATIONAHA.112.105775

Gilbert Syndrome: Cardioprotective

- 8-OHdG levels were 7.8±2.4 vs. 10.4±3.2 ng/mg creatinine, for Gilbert vs control subjects: P=0.001
- FMD was 7.2±2.2% vs. 5.9±1.7% for Gilbert vs control: P<0.001
- Patients with Gilbert syndrome have lower levels of oxidative stress and enhanced endothelial function

Maruhashi, T., et. al. *Circulation. published online July 6, 2012*
DOI: 10.1161/CIRCULATIONAHA.112.105775

Disease

CACS Significantly Enhances FRS in Intermediate Risk Subjects

- 1,330 non-DM, intermediate risk, MESA subjects; followed ~7.6 yrs.
- Compare CACS, CIMT, ABI, brachial FMD, hsCRP and Famhx in enhancing FRS for predicting CV events
- 123 CVD events occurred (94 CHD)

Yeboah, J. MD, MS, et. al. *JAMA*. 8/21/2012;308(8):788-795

CACS Significantly Enhances FRS in Intermediate Risk Subjects

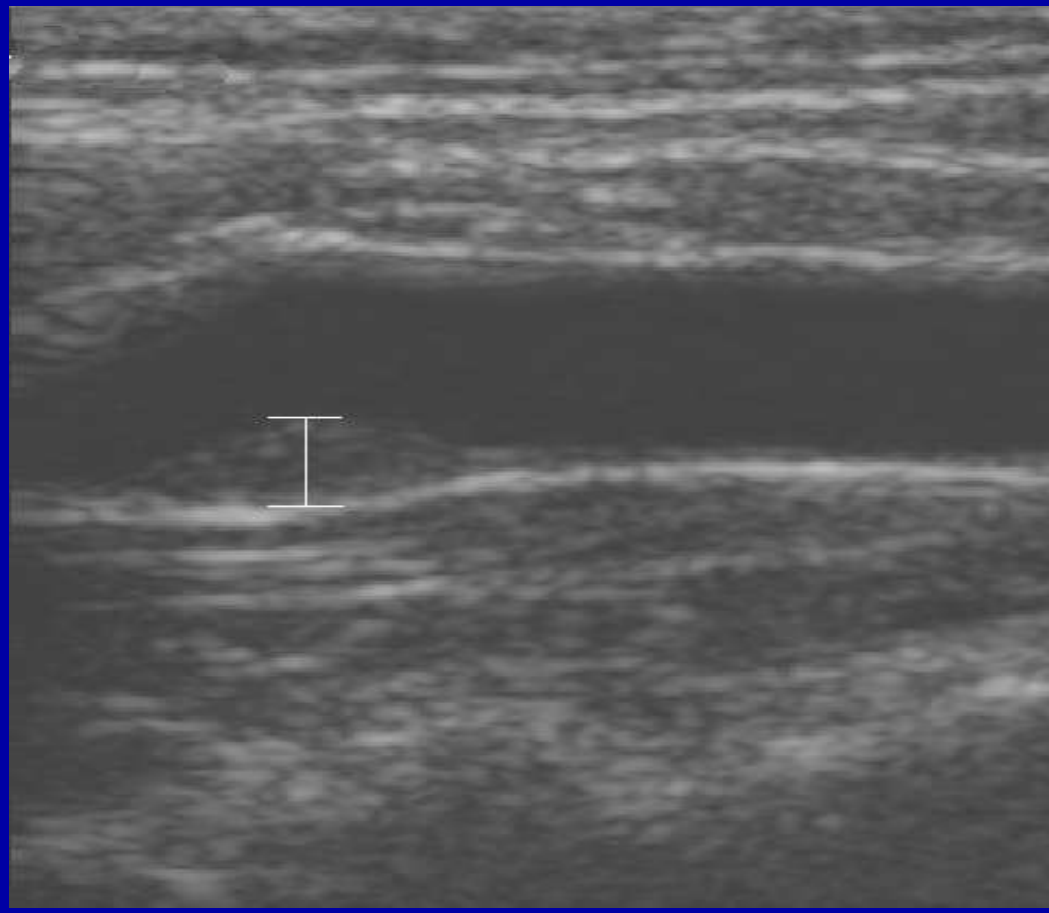
- Independent significant predictors:
  - CAC – HR- 2.60 (95% CI, 1.94-3.50)
  - Famhx- HR- 2.18 (95% CI, 1.38-3.42)
  - hsCRP- HR- 1.28 (95% CI, 1.00-1.64)
  - ABI - HR- 0.79 (95% CI, 0.66-0.95)
- Non-significant independent predictors:
  - CIMT - HR-1.17 (95% CI, 0.95-1.45)
  - BFMD- HR-0.95 (95% CI, 0.78-1.14)
- CAC provided superior discrimination and risk reclassification compared with other risk markers

Yeboah, J. MD, MS, et. al. *JAMA*. 8/21/2012;308(8):788-795

Plaque as measured by:

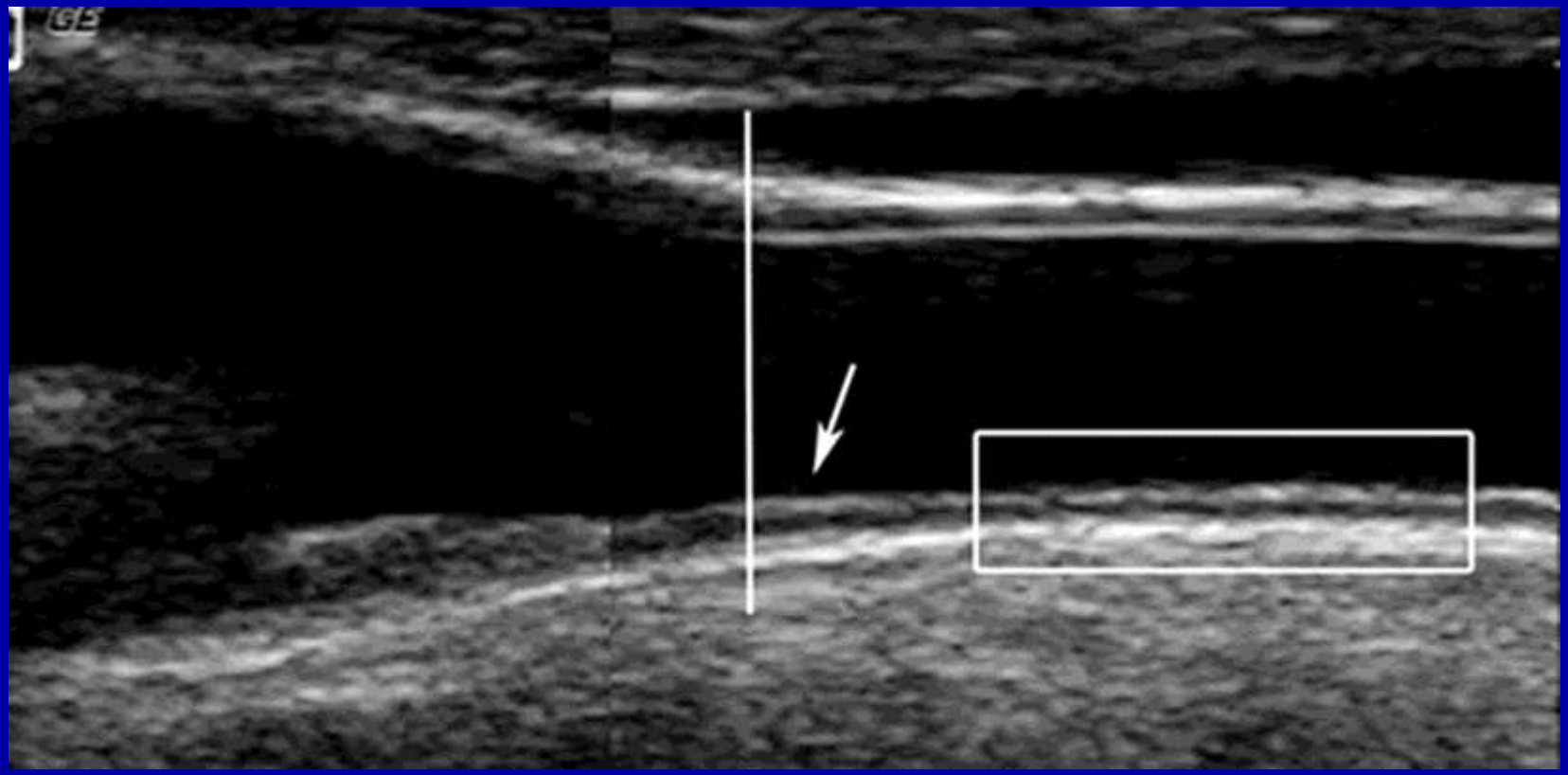
CACS

cIMT



Plaque vs cIMT

Carotid Intima Media Thickness



Polak J F et al. Stroke 2011;42:3017-3021

American Heart Association
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CIMT Plus Carotid Plaque Assessments Add Value to Traditional CV Risk Factors (TRF)

- The MESA study reported that CACS was a better predictor of CV events, especially CHD events, when compared to CIMT
- However, this study did not consider plaque presence or absence.
- Furthermore, the number of CV events was only 222, including angina, and the follow-up was shorter.
- Other factors like cost-effectiveness and safety and feasibility of testing will need to be considered

Nambi, V., MD, et. al. ***J Am Coll Cardiol*** 10/2010;55:1600–7

CIMT versus Carotid Plaque

- They have different relationships to CV risk factors as well as clinical end points.

- Although highly correlated, plaque and IMT may reflect different genetic and biological aspects of atherogenesis with distinctive relations to cardiovascular risk factors and to clinical vascular disease.

Marit Herder, et. al. ***Stroke. 5/12012;43:00-00***
http://stroke.ahajournals.org/content/early/2012/04/30/STROKEAHA.111.646596

CIMT versus Carotid Plaque

- IMT is strongly related to age and BP; mainly represents a hypertrophic adaptive response of smooth muscle cells in the tunica media to high shear stress
- IMT as a marker of atherosclerosis has been questioned, especially when measurements include the CCA-IMT only
- IMT was not associated with ischemic stroke risk after adjustment for other CV risk factors

Marit Herder, et. al. ***Stroke. 5/12012;43:00-00***
http://stroke.ahajournals.org/content/early/2012/04/30/STROKEAHA.111.646596

CIMT versus Carotid Plaque

- Plaques usually occur at sites of low shear and nonlaminar turbulent flow such as in the carotid bulb and the proximal internal carotid artery

- Total plaque area (TPA) is more strongly associated with traditional CV risk factors and a stronger predictor of CAD

- Autopsy and US studies have demonstrated that carotid plaque is more strongly correlated to atherosclerosis in other vascular beds than is IMT

Marit Herder, et. al. ***Stroke. 5/12012;43:00-00***
http://stroke.ahajournals.org/content/early/2012/04/30/STROKEAHA.111.646596

CIMT versus Carotid Plaque

- 2,743 pts.; ~50% female; CIMT at baseline and at13 yrs

- CV risk factors TC, smoking, and systolic BP were stronger long-term predictors of TPA and TPA progression than for IMT and IMT progression

Marit Herder, et. al. ***Stroke. 5/12012;43:00-00***
http://stroke.ahajournals.org/content/early/2012/04/30/STROKEAHA.111.646596

CIMT Plus Carotid Plaque Assessments Add Value to Traditional CV Risk Factors (TRF)

- 13,145 ARIC subjects; CHD events observed were compared with expected events utilizing predictive models
- The net reclassification index was calculated comparing TRF to TRF plus CIMT information
- Results: CIMT plus plaque plus TRF model provided the most improvement in predicting CHD events

  23% of subjects were reclassified

Nambi, V., MD, et. al. ***J Am Coll Cardiol*** 10/2010;55:1600–7

CIMT Plus Carotid Plaque Assessments Add Value to Traditional CV Risk Factors (TRF)

- Adding CIMT and/or plaque information (individually and together) to TRF improved the AUC for predicting CHD events significantly (even after adjustment for optimism)
- Adding CIMT alone in women was not significant
- Adding CIMT had a more pronounced effect than adding plaque to TRF on the AUC for men
- In all CIMT categories, the presence of plaque was associated with a higher incidence of CHD events

Nambi, V., MD, et. al. ***J Am Coll Cardiol*** 10/2010;55:1600–7

CIMT Plus Carotid Plaque Assessments Add Value to Traditional CV Risk Factors (TRF)

- Adding plaque information along with CIMT to FRS had similar results
- FRS plus CIMT plus plaque was better than the FRS-only model in both men and women

Nambi, V., MD, et. al. ***J Am Coll Cardiol*** 10/2010;55:1600–7

CIMT Plus Carotid Plaque Assessments Add Value to Traditional CV Risk Factors (TRF)

- CIMT and plaque information can improve CHD risk prediction
- More subjects were reclassified to a lower risk group than to a higher risk group
- However 38% of intermediate risk were reclassified as high risk
- Plaque presence seemed to have a more profound effect on improving risk prediction in women than in men

Nambi, V., MD, et. al. ***J Am Coll Cardiol*** 10/2010;55:1600–7

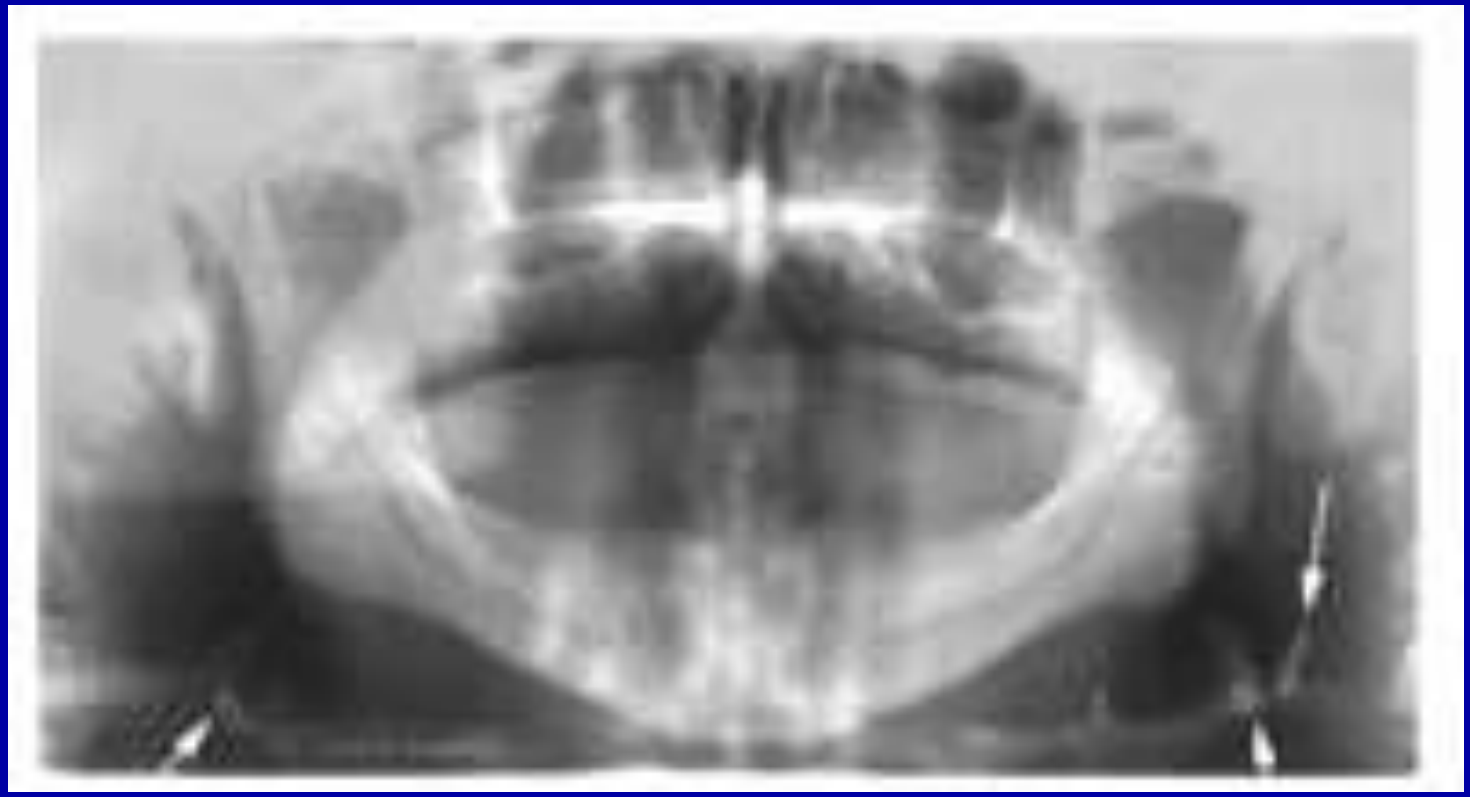
Endothelial Shear Stress and Atheromas

- Localization of coronary lesions occurs despite similar exposure to pro-atherosclerotic risk factors.
- Attributable to localized hemodynamic disturbances, especially to endothelial shear stress
- High endothelial shear stress is athero-protective
- Low endothelial shear stress induces an atherogenic phenotype: a) reduces nitric oxide bioavailability b) promotes LDL uptake and oxidation c) recruits inflammatory cells d) promotes smooth muscle cell migration to the intima
- Low endothelial shear stress is found at branch points, bifurcations and areas of large curvature in coronary arteries.

Chatzizisis YS, et. al. J Am Coll Cardiol 2007, 49: 2379–2393
Chatzizisis YS, et. al. Circulation 2008, 117: 993–1002
VanderLaan PA, et. al. Arterioscler Thromb Vasc Biol 2004, 24: 12–22

Carotid Artery Calcification (CAC) on Panograph

Bilateral CAC in Edentulous Patient



Fire/Inflammation

Inflammation in Atherosclerosis

"Unraveling the roles of cytokines as inflammatory messengers provided a mechanism whereby risk factors for atherosclerosis can alter arterial biology, and produce a systemic milieu that favors atherothrombotic events.

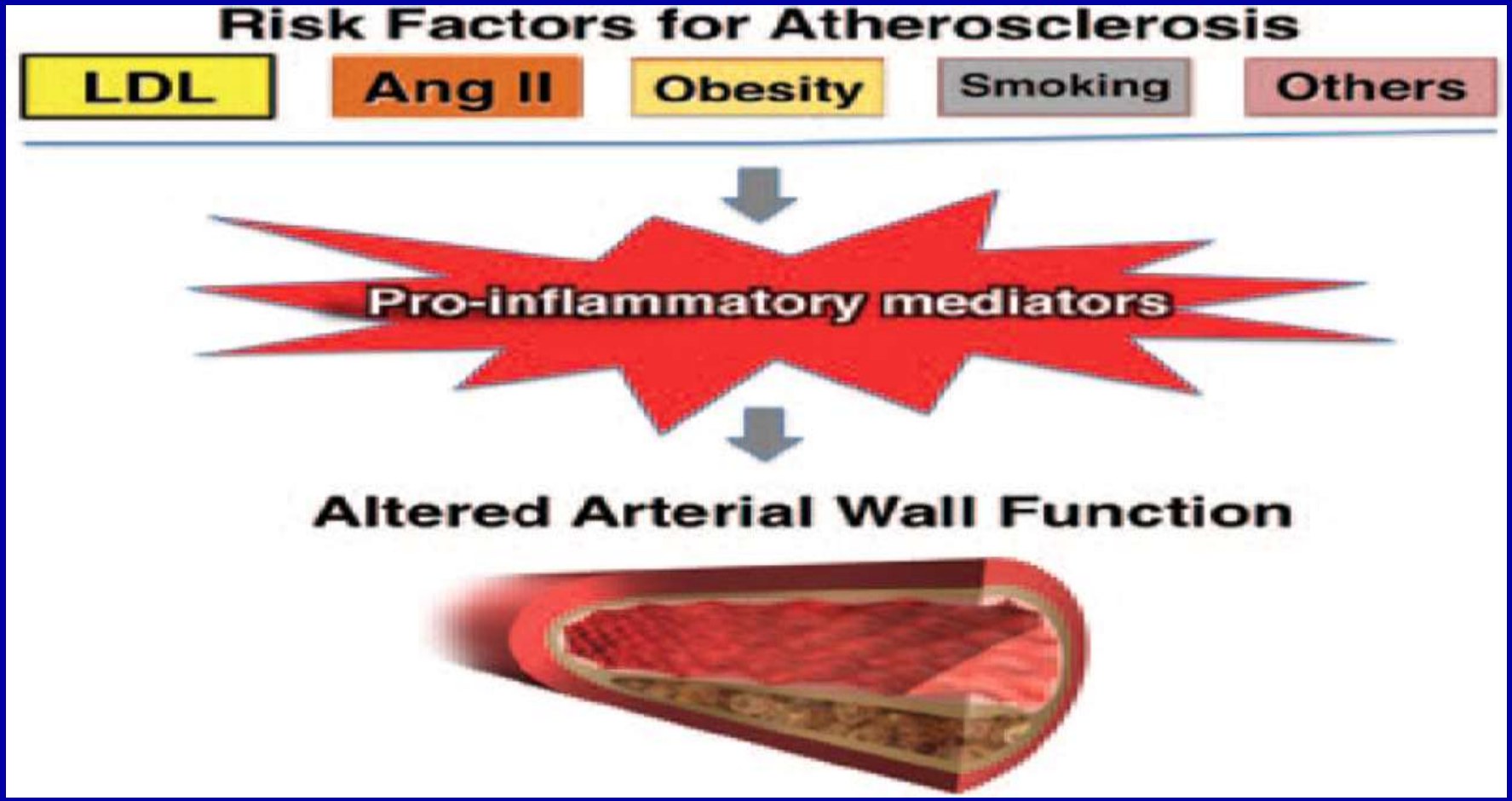
Inflammation per se can drive arterial hyperplasia, even in the absence of traditional risk factors.

Inflammation regulates aspects of plaque biology that trigger the thrombotic complications of atherosclerosis."

– Peter Libby, MD

Libby P Arterioscler Thromb Vasc Biol 2012;32:2045-2051

The relationship between traditional risk factors for atherosclerosis and inflammation.



Libby P Arterioscler Thromb Vasc Biol 2012;32:2045-2051

Apo E and CV risk through the inflammatory lens

686 patients, 401 men and 247 women,

324 Caucasians and 208 African Americans

Exclusion: > 71 yrs, recent MI or PCI, use of lipid-lowering rx

For both groups, Lp-PLA2 index increased significantly and stepwise across the apoE isoforms p=0.009. No differences were found with CRP and fibrinogen.

Apo E 4 had higher levels of Lp-PLA2 in both ethnic groups.

Gungor Z, et al., Apo E4 and Lp-PLA2 synergistically increase cardiovascular risk, Atherosclerosis August 2012

Root Causes

Waist Related to All-cause Mortality Regardless of BMI

- ~105,000 pts.; ~54% female; followed 9 yrs.; 14,647 deaths; ~36% deaths female

- After adjusting for BMI:

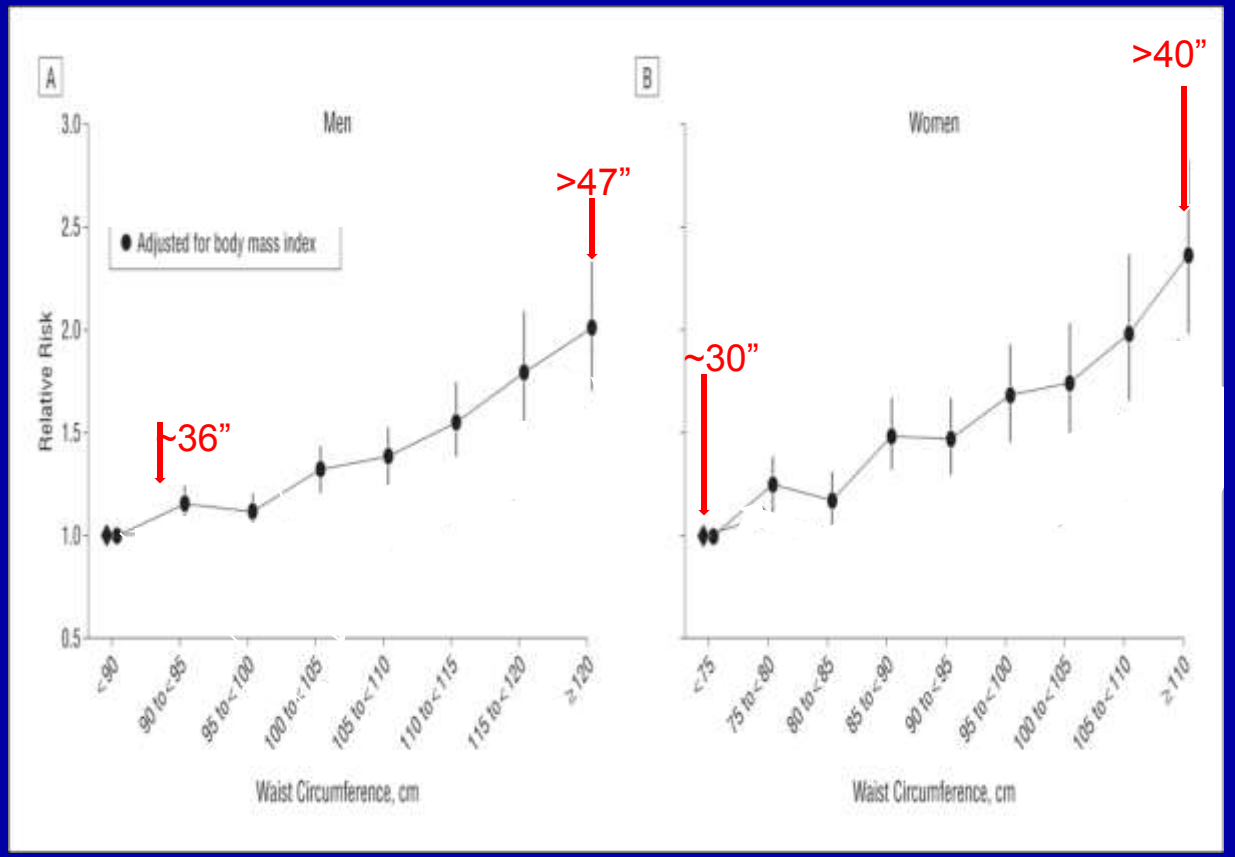
RR for death in men with waist ≥ 47” versus <36”
2.02 (95%CI, 1.71-2.39)

RR for death in women with waist ≥ 40” versus < 30”
2.36 (95% CI,1.98-2.82)

Patel, A. V. PhD, et. al. *Arch Intern Med*. 2010;170(15):1293-1301.

Waist Related to All-cause Mortality

Data from: Cancer Prevention Study II Nutrition Cohort, 1997-2006



adjusted for age, race, educational level, marital status, smoking status, alcohol use, height, and physical activity. Also hormones rx for women

Arch Intern Med. 2010;170(15):1293-1301. doi:10.1001/archinternmed.2010.201

Waist (WC) Related to All-cause Mortality Regardless of BMI

- Waist was positively associated with mortality within all categories of BMI.
- In men, a 4” increase in WC was associated with RRs of 1.16 (95% CI, 1.09-1.23), 1.18 (95% CI, 1.12-1.24), and 1.21 (95% CI, 1.13-1.30) within normal (18.5 to25), overweight (25 to30), and obese (30) BMI categories, respectively.
- In women, corresponding RRs were 1.25 (95% CI, 1.18-1.32), 1.15 (95% CI, 1.08-1.22), and 1.13 (95% CI, 1.06-1.20)

Patel, A. V. PhD, et. al. *Arch Intern Med*. 2010;170(15):1293-1301.

Incidence of Periodontal Disease (PD)

- Data reported by CDC- NHANES-2009-10
- 50% Americans ≥30 yo have PD !!
- 70% Americans >65 yo have PD
- PD is one of the most prevalent chronic diseases, similar to CVD and DM
- Many pts do not know they have PD

Published online before print August 30, 2012, doi: 10.1177/0022034512457373 *JDR* August 30, 2012 0022034512457373

The Greatest Health Threat to an Adult is CVD!

- Adults regardless of sex or ethnicity are 2 to 3 times more likely to suffer a CV event fatal or non-fatal rather than a non-CVD death

- The dental community must be involved in the effort to educate, screen and help manage this unacceptable CV risk!

Feinstein M et al. Circulation 7/2012;126:50-59
Bale/Doneen Method

Inculpatory Evidence: Periodontal Disease Assessment and Treatment is an Essential Element in Cardiovascular Wellness Programs

Peer reviewed 2 hour CE program

Amy Doneen, ARNP, Bradley Bale, MD,
Thomas W. Nabors, DDS, FACD

Dental Economics September 2012

Low Vitamin D Dietary Intake Associated with Ischemic Stroke Risk

- 7,385 Japanese-American men; followed 35 years; 960 incident strokes

- Lowest quartile versus highest quartile of dietary vit. D intake had significant increased risk of ischemic stroke

  HR- 1.27 (95% CI, 1.01–1.59) *P=0.044*

  adjusted for: age, total kilocalories, BMI, BP, DM, smoking, physical activity, cholesterol, and alcohol

Kojima, G., MD, et. al. ***Stroke. 6/2012;43:2163-2167***

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Kojima, G., MD, et. al. ***Stroke. 6/2012;43:2163-2167***

Sleep apnea linked to CV deaths in elderly, CPAP eliminates excess risk

Prospective, observational, ≥ 65 years of age. Median follow-up: six years

Mild-Mod OSA: AHI 15-29, Severe: AHI ≥30.

CPAP treatment was offered to all the patients with ≥ 15 AHI

Patients with AHI <15 acted as controls. CPAP use four or more hours daily was considered good adherence to treatment.

The main outcome measure was cardiovascular death.

Martínez-García M-A, Campos-Rodrígues F, Catalán-Serra P, et al. Cardiovascular mortality in obstructive sleep apnea in the elderly. Role of long-term CPAP treatment. A prospective observational study. Am J Respir Crit Care Med Sept 7, 2012

Sleep apnea linked to CV deaths in elderly, CPAP eliminates excess risk

Compared with the control group, the adjusted Hazard Ratios for cardiovascular mortality were:

2.25 for patients with untreated severe OSA

0.93 for patients treated with CPAP

1.38 for patients with untreated mild to moderate OSA.

Compliance was independently associated with a reduced risk of cardiovascular mortality.

Martínez-García M-A, Campos-Rodrígues F, Catalán-Serra P, et al. Cardiovascular mortality in obstructive sleep apnea in the elderly. Role of long-term CPAP treatment. A prospective observational study. Am J Respir Crit Care Med Sept 7, 2012

Genetics

Impact of Sex on Cardiovascular Outcome in Patients at High Cardiovascular Risk Analysis of the Telmisartan Randomized Assessment Study in ACE-Intolerant Subjects With Cardiovascular Disease (TRANSCEND) and the Ongoing Telmisartan Alone and in Combination With Ramipril Global End Point Trial (ONTARGET)

***Circulation*. September 2012;126:934-941**

Epidemiological data suggest that sex independently contributes to cardiovascular risk. Clinical trials are often hampered by the enrollment of few female patients. (TRANSCEND) included a large proportion of female patients (9378 female versus 22 168 male patients).

Baseline characteristics included age, ethnicity, body mass index, physical activity, tobacco use, alcohol consumption, formal education, clinical diagnosis for study entry, patient history, and concomitant medication.

Patients were followed up until death or the end of the study (median, 56 months).

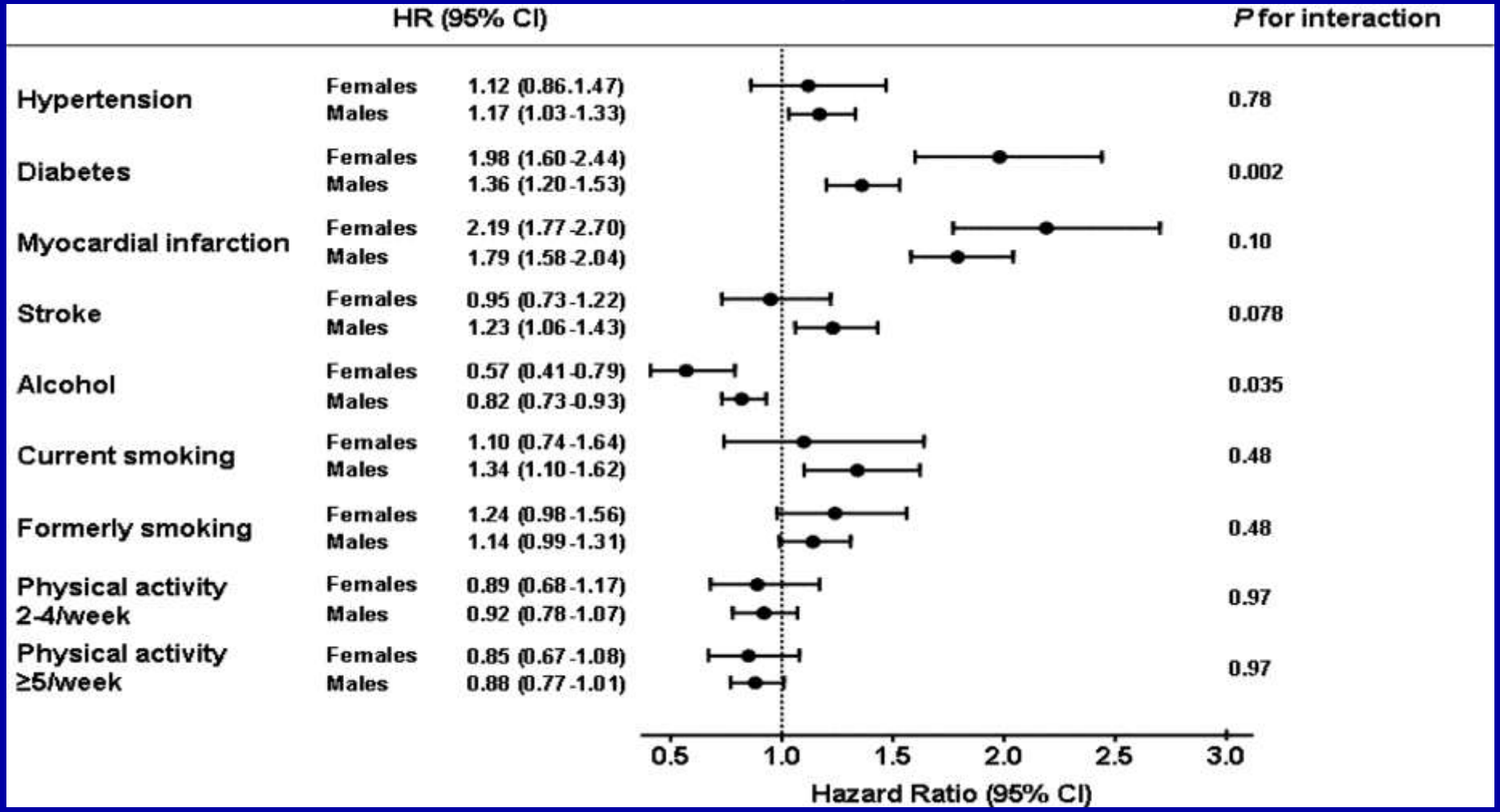
Compared with male patients, female patients had a 19% significantly lower risk for the 4-fold end point and 21% for the 3-fold end point (after adjustment for study, treatment, and the above baseline values).

Conclusions—In our analysis made up of 70.3% male and 29.7% female patients, an 20% lower risk for the combined cardiovascular end points in female patients was observed despite treatment with cardioprotective agents.

This difference was driven primarily by a significantly lower incidence of myocardial infarction in women. Thus, we demonstrate in a large interventional trial that sex greatly affects the occurrence of CV events

***Circulation*. September 2012;126:934-941**

Sex differences in risk factor and clinical associations with acute myocardial infarction.



Kappert K et al. Circulation 2012;126:934-941

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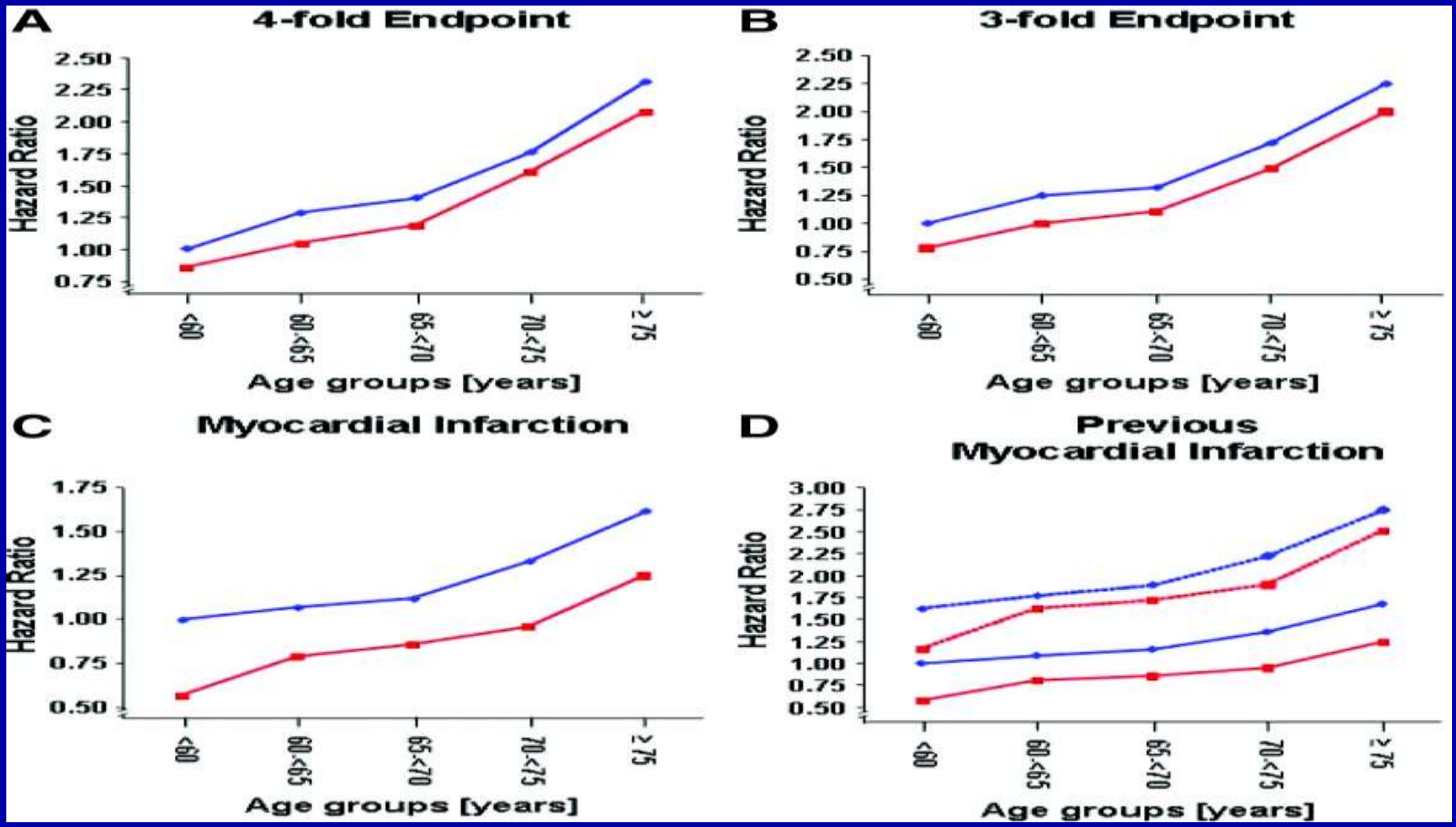
Bale Doneen METHOD

Hazard ratio by sex and age: 4-fold end point



Kappert K et al. Circulation 2012;126:934-941

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Authors' Conclusion:

Previously, the time difference between male and female patients in terms of the occurrence of a CV end point has been estimated to be between 5 and 10 years. This was true for the combined end points but not for MI.

Despite their lower risk in the total population, diabetic women were at greater risk than diabetic man of developing MI.

Significant sex-related differences in CV outcome in patients with vascular disease or high-risk diabetes mellitus.

Despite appropriately individualized cardioprotective therapy, female patients are at lower net CV risk than male patients and develop CV end points 5 to 10 years later.

***Circulation*. September 2012;126:934-941**

Thoughts this analysis brings to the table:

Carolyn S.P. Lam and William C. Little

An encouraging sign that the sex gap of representation in cardiovascular trials is narrowing.

These data raise some important questions.

- Are women at an advantage or are men at a disadvantage for myocardial infarction?
- Why is there a sex interaction with diabetes mellitus and risk? Is any advantage or disadvantage
- specific to a particular vascular bed?
- How do these findings relate to the general population? Because women generally live longer than men, women constitute a larger proportion of the elderly population in which the prevalence of cardiovascular disease is greatest.
- Globally, cardiovascular disease remains the leading cause of death in both men and women.
- These statistics indicate that preventive measures are of critical
- importance in both women and men.

Treatment

COX Inhibition Mechanism of Increasing Risk of Thrombosis

- COX-2 deletion decreased prostacyclin (PGI2) synthase and production, proliferator-activated receptor (PPAR) gamma and sirtuin-1 (SIRT1) expression, with consequent increased upregulation of tissue factor (TF), the primary initiator of blood coagulation.

- Treatment of COX-2KO mice with a PGI2 receptor (IP) agonist or a PPAR gamma agonist completely reversed the thrombotic phenotype in COX-2KO mice, restoring normal SIRT1 levels and reducing TF activity.

Barbieri, S. S., et. al. *Circulation. published online August 3, 2012*
http://circ.ahajournals.org/content/early/2012/08/03/CIRCULATIONAHA.112.097295

NSAID CV risk persists for at least five years post-MI

- "The **American Heart Association** issued guidelines in 2007 discouraging use of NSAIDs in patients with prior MI, but in our study 44% of the MI patients were still taking NSAIDs in 2009; the message has obviously not gotten through." **Dr Anne-Marie Schjerning Olsen**

NSAID CV risk persists for at least five years post-MI

Time (years)	Death	CHD death/MI
1 year	1.59 (1.49-1.69)	1.30 (1.22-1.39)
5 years	1.63 (1.52-1.74)	1.41 (1.28-1.55)

Diclofenac: highest risk of a cardiovascular event, with a HR of 2.07-2.73.
Rofecoxib and **Celecoxib** (Celebrex, Pfizer) were the next in line, with hazard ratios of 1.73-2.17 and 1.55-1.87, respectively.
Naproxen was the NSAID with the lowest relative cardiovascular risk (HR 1.02-1.85).

Circulation on September 10, 2012, Dr Anne-Marie Schjerning Olsen (Copenhagen University Hospital Gentofte, Denmark).

Omega-3 Fatty Acid Supplementation Not Associated With Lower Risk of Major Cardiovascular Disease Events

20 studies with 68,680 randomized patients were included, reporting 7,044 deaths, 3,993 cardiac deaths, 1,150 sudden deaths, 1,837 heart attacks, and 1,490 strokes.

Analysis indicated no statistically significant association with all-cause mortality, cardiac death, sudden death, heart attack, and stroke when all supplement studies were considered.

Omega-3 PUFAs failed to show statistical significance associated with major cardiovascular outcomes across various patient populations.

**BD Caution – meta-analysis, not randomized, not controlled analysis.

JAMA. September 12, 2012;308[10]:1024-1033.

Sodium/potassium Ratio Important

- Data from NHANES III; prospective; 12,267 US adults; mean follow-up 14.8 years; 825 CV deaths and 443 CAD deaths
- After multivariable adjustment, sodium-potassium ratio, comparing the highest quartile with the lowest quartile were HR - 1.46 for CVD mortality, and 2.15 for CAD mortality.
- Sodium/potassium ratio of <1 is protective
- Simple solution is to replace regular snacks with fruit: doughnut contains 210 mg of Na and 120 mg K ; orange 1.6 mg of Na and 150 mg K

Yang Q, et. al. *Arch Intern Med* 7/11/2011; 171:1183-1191.

Upcoming Events

- Sept 14-15: Preceptorship – San Antonio
- Sept 20: Reunion – Las Vegas
- Sept 21-22: CHL symposium – Las Vegas
- Oct 5: AAPP: Orlando Florida
- Oct 6: Bale/Doneen 5 hr Inflammatory CME program; Chicago IL
- Nov 2: Vascular Inflammation: The oral/Systemic Connection – Las Vegas, NV
- Nov 6: AHA Abstract presentation with our Clinical Data in partnership with John Hopkins.

JOURNAL OF Arteriology

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Medical/Dental Arteriology
Bale/Doneen/Nabors

November 2, 2012
Las Vegas Nevada

$995 for dentists and medical providers
$595 for hygienists
“Team” Discounts available
To register:
www.baledoneen.com

Bale Doneen METHOD

JOURNAL OF Arteriology
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Inflammation and the Oral Systemic Connection

What will the course do for you:

Encourage you to become an Oral Medicine expert in your community.

Become a dental practice that is sought out by physicians for co-management.

Assist you to formulate your own action plan for optimal wellness

Facilitate a better understanding of your own personal risk

Enhance the comprehensiveness of your medical history forms.

Elucidate the tests that define arterial inflammation & the oral/systemic connection.

Create bridges necessary to network with the medical teams in your community.

JOURNAL OF Arteriology

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Inflammation and the Oral Systemic Connection

What you will receive :

Define the role of Oral Medicine as a vital component of vascular diseases

Documents to reclassify each patient from a CV perspective.

Opportunity for a carotid IMT scan to help determine your classification.

A health history form utilized in the Bale/Doneen medical/dental practices.

Laboratory flow sheet for the tests that relate to the oral systemic connection.

Referral letters to help establish relationships

Facilitate marketing your practice as an oral systemic optimal practice

Bale Doneen METHOD

Bale/Doneen MethodReunion
September 20, 2012
Las Vegas – Venetian Hotel – Titian Room

8:00 – 9:00 Continental Breakfast Buffet, Registration and sign-up

9:00 – 9:30 What is new?

9:30 – 10:30 Amy update

10:30 – 10:45 Break

10:45 – 11:45 Brad update

11:45 – 12:30 Lunch: Speaker: Christian Lehinger *"Data Collection and Clinical Application"*

12:30 – 2:15 Panel Discussions: *"Transitioning the Bale/Doneen Method into Medical Practices".*

2:15 – 2:30 Break

2:30 – 4:00 Case Submissions: Discussion

4:00 – 5:00 1 hr Ethics CME to discuss private vs insurance based practice: Terry Waldren, Ph.D., The Waldren Group.

Bale/Doneen Ethics Course - Dr. Terry Waldren

1. Is it ethical to operate outside of insurance and government control – patients will be expected to pay for their medical needs.

2. Is it ethical to see fewer patients and be able to provide excellent treatment to these people who can pay on their own - Is it ethical for patients to want/receive extra care?

3. Is it ethical to operate with insurance – government controls that require you to see large numbers of patients to succeed. This approach may limit the tests and procedures you can prescribe – may not pay for tests that may be better predictors of CVD.

4. Does a method that is prevention focused and significantly reduces the incidence of heart attack, stroke and diabetes incidents/disease justify using preponderance of evidence based procedures until evidence based research can be conducted?